

Application No. 10/697,664
Amendment dated August 6, 2007
Reply to Office Action of November 10, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a distal end adapted to cooperatively engage the plunger tip, an opposite proximal end adapted to cooperatively engage the plunger rod, and a length between said distal end and said proximal end, said adapter being configured to maintain the plunger tip and the plunger rod in fixed relationship to one another and to said adaptersaid distal end and said proximal end in fixed relationship with one another, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said distal end of said adapter being open to form a portion of a cooling chamber and to permit the coolant to directly contact an interior surface of the plunger tip that forms a portion of the cooling chamber, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
2. (original) The adapter of claim 1, wherein said at least one passage of said adapter is an axial bore.
3. (original) The adapter of claim 2, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.
4. (original) The adapter of claim 1, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
5. (original) The adapter of claim 1, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end of said adapter.
6. (original) The adapter of claim 1, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to

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facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.

7. (original) The adapter of claim 1, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.

Claims 8-22 (cancelled).

23. (currently amended) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a threaded distal end adapted to cooperatively engage the plunger tip ~~to maintain said adapter and the plunger tip in fixed relationship to one another~~, an opposite proximal end adapted to cooperatively engage the plunger rod ~~to maintain said adapter and the plunger rod in fixed relationship to one another~~, and a length between said distal end and said proximal end, said adapter being configured to maintain the plunger tip and the plunger rod in fixed relationship to one another, said distal end and said proximal end in fixed relationship with one another, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
24. (previously presented) The adapter of claim 23, wherein said at least one passage of said adapter is an axial bore.
25. (previously presented) The adapter of claim 24, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.
26. (previously presented) The adapter of claim 23, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
27. (previously presented) The adapter of claim 23, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end.

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of said adapter.

28. (previously presented) The adapter of claim 23, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.
29. (previously presented) The adapter of claim 23, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.
30. (currently amended) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a distal end adapted to cooperatively engage the plunger tip, an opposite proximal end adapted to cooperatively engage the plunger rod, and a length between said distal end and said proximal end, said adapter being configured to maintain ~~the plunger tip and the plunger rod in fixed relationship to one another and to said adapter~~ said distal end and said proximal end in fixed relationship with one another, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said adapter having a maximum cross-sectional dimension transverse to the length of said adapter, said distal end having a cross-sectional dimension transverse to the length of said adapter that is less than said maximum cross-sectional dimension, said distal end having a generally cylindrical cross section along at least a portion of the length, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
31. (previously presented) The adapter of claim 30, wherein said at least one passage of said adapter is an axial bore.
32. (previously presented) The adapter of claim 31, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.

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33. (previously presented) The adapter of claim 30, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
34. (previously presented) The adapter of claim 30, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end of said adapter.
35. (previously presented) The adapter of claim 30, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.
36. (previously presented) The adapter of claim 30, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.
37. (previously presented) The adapter of claim 1, wherein said adapter has a mid-longitudinal axis, the plunger tip has a mid-longitudinal axis, and the plunger rod has a mid-longitudinal axis, said adapter being configured to fixedly align the mid-longitudinal axis of said adapter with the mid-longitudinal axis of the plunger tip and the mid-longitudinal axis of the plunger rod.
38. (previously presented) The adapter of claim 23, wherein said adapter has a mid-longitudinal axis, the plunger tip has a mid-longitudinal axis, and the plunger rod has a mid-longitudinal axis, said adapter being configured to fixedly align the mid-longitudinal axis of said adapter with the mid-longitudinal axis of the plunger tip and the mid-longitudinal axis of the plunger rod.
39. (previously presented) The adapter of claim 30, wherein said adapter has a mid-longitudinal axis, the plunger tip has a mid-longitudinal axis, and the plunger rod has a mid-longitudinal axis, said adapter being configured to fixedly align the mid-longitudinal axis of said adapter with the mid-longitudinal axis of the plunger tip and the mid-longitudinal axis of the plunger rod.

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40. (new) The adapter of claim 1, wherein said adapter is configured to maintain the plunger tip and the plunger rod in fixed relationship to one another and to said adapter.
41. (new) The adapter of claim 1, in combination with a plunger tip and a plunger rod, wherein said adapter is configured to maintain said plunger tip and said plunger rod in fixed relationship to one another and to said adapter.
42. (new) The adapter of claim 1, wherein said adapter is formed unitarily.
43. (new) The adapter of claim 42, in combination with a plunger tip and a plunger rod, wherein said unitarily-formed adapter is configured to maintain said plunger tip and said plunger rod in fixed relationship to one another and to said adapter.